

# Supply

## Production

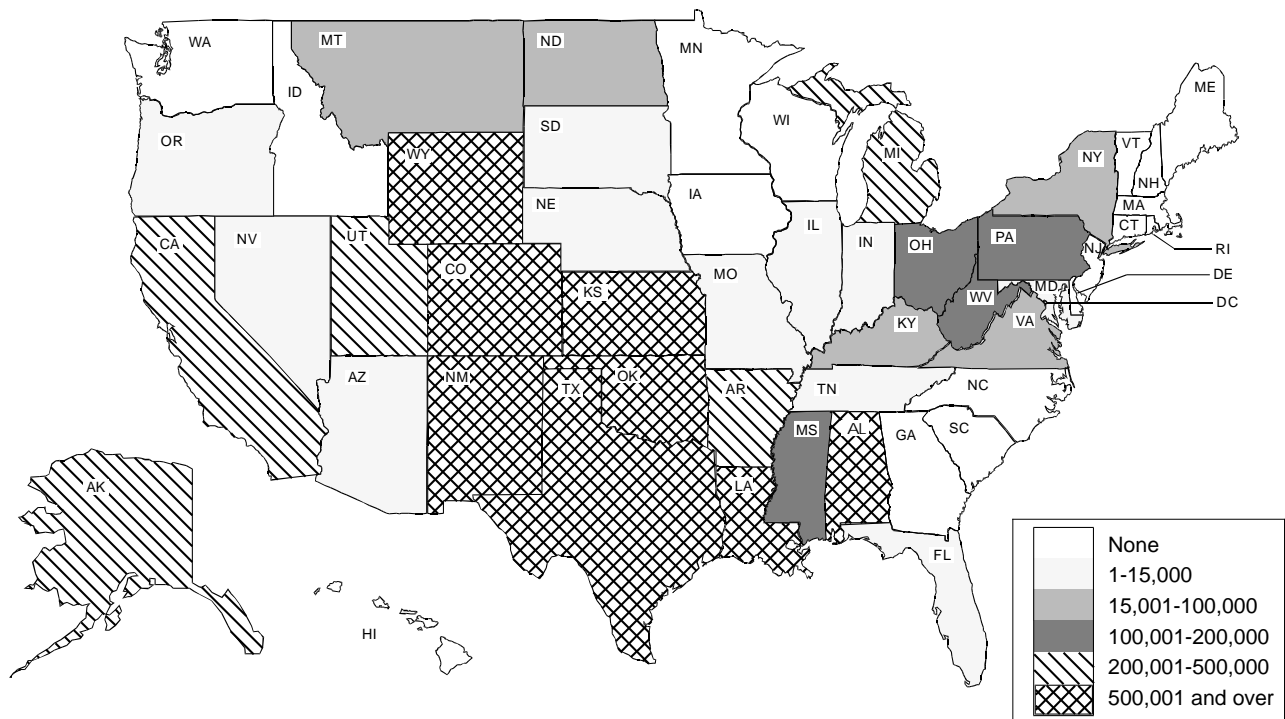
Gross withdrawals of natural gas reached 24.1 trillion cubic feet in 1996, 0.3 trillion cubic feet more than in 1995. Total marketed production of natural gas also increased. The 1996 level was 19.8 trillion cubic feet, 1 percent higher than one year ago. Marketed production is derived by subtracting quantities used for repressuring, vented and flared, and the removal of nonhydrocarbons from total gross withdrawals of natural gas. Louisiana, Texas, Oklahoma, and New Mexico remained as the leading producers of natural gas. During the past three years, these four States have supplied approximately three-quarters of domestic production, and this trend continued in 1996 as they produced 15 trillion cubic feet, 76 percent of marketed natural gas production. Texas led with 6.4 trillion cubic feet, followed by Louisiana with 5.2, Oklahoma with 1.7 trillion cubic feet, and New Mexico with 1.6 trillion cubic feet. The twenty-nine

remaining gas-producing States produced 4.8 trillion cubic feet.

A number of supply sources contributed to the greater gas production in 1996. Production from the entire Gulf of Mexico increased 3.2 percent over 1995 volumes. The Gulf of Mexico increase of 323 billion cubic feet together with notable increases in Arkansas and Colorado more than offset declines in onshore Louisiana, New Mexico, and Oklahoma. The total rise in U.S. marketed production was 244 billion cubic feet.

The trend for increasing gas production from the offshore Gulf of Mexico is expected to continue during the next few years in light of the list of projects under development or in planning. The Mensa project in 5,400 feet of water began production in 1997. This project is quite significant because it has the deep water record for production. These technical

**Figure 4. Marketed Production of Natural Gas in the United States, 1996**  
(Million Cubic Feet)



Sources: Illinois, New York, and West Virginia: Energy Information Administration (EIA), *U.S. Crude Oil, Natural Gas, and Natural Gas Liquids Reserves, Annual Reports*, DOE/EIA-0216; and EIA computations. All other data: Form EIA-895, "Monthly Quantity and Value of Natural Gas Report" and the United States Minerals Management Service.

accomplishments are impressive in themselves, and associated with each milestone is the expansion of future production opportunities as another technical barrier is overcome. The extension of recovery opportunities into deep water has established the deep offshore as an area of considerable national significance.

A second source of increased supply is gas from coalbed formations. Natural gas production from coalbed methane fields continued to grow in 1996 as projects initiated mainly in the early to mid 1990's matured through the dewatering phase into higher rates of gas production. Coalbed formations contribute almost 1 trillion cubic feet, roughly 5 percent, to total U.S. production. Continued production growth from coalbeds is not likely in light of the precipitous drop in new wells completed in coalbed formations since the termination of the production tax credit at the end of 1992. New well completions in coalbed formations averaged 244 in 1995 and 1996, compared with 1,325 from 1990 through 1992.

The strong industry performance in 1996 is expected to continue at least for the near term. In 1996, the number of producing gas wells and gas-condensate wells climbed to over 300,000 for the first time, reaching 301,811, a 1 percent increase over the 1995 level. The number of producing wells has increased each year since 1992. From 1995 to 1996, Alabama and Colorado showed substantial increases in the number of producing wells, 16 percent and 18 percent, respectively.

## Wellhead Prices

Average wellhead prices climbed sharply during 1996, rising to \$2.17 per thousand cubic feet, 40 percent over the

1995 level of \$1.55 per thousand cubic feet. Production was stimulated at least in part by this increase. The 1996 wellhead price was at its highest level since 1985 when it averaged \$2.51 per thousand cubic feet.

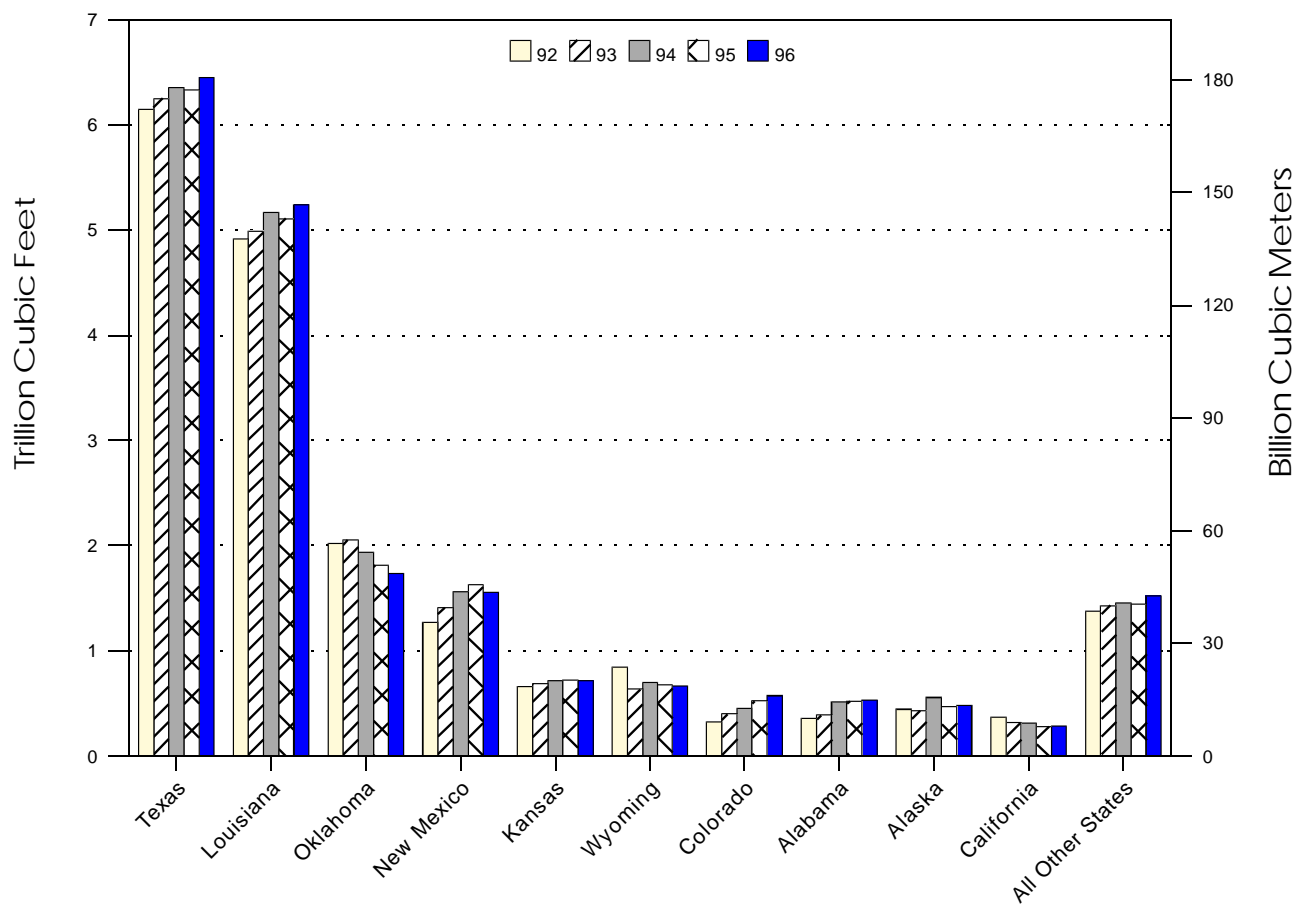
## Drilling

Exploration and development activities incrementally added to existing reserves of natural gas. The number of rotary rigs running and the number of well completions are indicators that in the past have been good guides to the level of exploration and development activity, and thus to subsequent reserves additions. In 1996, these indicators increased. Rotary rigs drilling for gas rose from 385 to 464, exceeding the number of rigs drilling for oil for the third year in a row. Total rigs running rose from 723 to 779.

Well completions for gas exceeded those for oil for the fourth year in a row. Exploratory gas well completions were up in 1996 from 835 to 943, while gas development well completions rose from 6,534 to 8,412. Total gas well completions were up from 7,369 to 9,355.

Overall well completions rose from 18,655 to 22,740. Of these 3,945 were exploratory wells and 18,795 were development wells. This reverses the downward trend in total completions which began after a 1990 drilling surge, caused by the legislative incentives for coalbed methane and tight gas drilling. The reversal has been driven by higher world oil prices and the increased focus of independent operators on the Federal Outer Continental Slope.

**Figure 5. Marketed Production of Natural Gas in Selected Sectors, 1992-1996**



Sources: Illinois, New York, Tennessee, and West Virginia, 1996: Energy Information Administration (EIA) computations. All other data: Form EIA-895, "Monthly Quantity and Value of Natural Gas Report," and the United States Minerals Management Service.

**Table 3. Gross Withdrawals and Marketed Production of Natural Gas by State, 1992-1996**  
(Million Cubic Feet)

Year and State	Gross Withdrawals			Repressuring	Nonhydrocarbon Gases Removed	Vented and Flared	Marketed Production
	From Gas Wells	From Oil Wells	Total				
<b>1992 Total</b> .....	16,164,874	5,967,376	22,132,249	2,972,552	280,370	167,519	18,711,808
<b>1993 Total</b> .....	16,691,139	6,034,504	22,725,642	3,103,014	413,971	226,743	18,981,915
<b>1994 Total</b> .....	17,351,060	6,229,645	23,580,706	3,230,667	412,178	228,336	19,709,525
<b>1995 Total</b> .....	17,282,032	6,461,596	23,743,628	3,565,023	388,392	283,739	19,506,474
<b>1996 Total</b> .....	17,680,777	6,370,888	24,051,665	3,510,330	518,425	272,117	19,750,793
Alabama Total.....	570,907	11,394	582,301	22,601	27,006	1,853	530,841
Onshore .....	209,839	11,394	221,233	22,601	16,762	1,593	180,277
State Offshore.....	209,013	0	209,013	0	10,244	260	198,509
Federal Offshore...	152,055	0	152,055	0	0	0	152,055
Alaska Total.....	183,747	3,189,837	3,373,584	2,885,686	0	7,070	480,828
Onshore .....	64,751	3,182,782	3,247,533	2,885,686	0	5,942	355,905
State Offshore.....	118,996	7,055	126,051	0	0	1,128	124,922
Federal Offshore...	0	0	0	0	0	0	0
Arizona.....	417	47	464	0	0	0	463
Arkansas.....	182,895	41,551	224,446	2,354	0	270	221,822
California Total.....	86,431	313,581	400,011	111,317	932	1,268	286,494
Onshore .....	80,923	245,996	326,919	93,079	932	1,268	231,640
State Offshore.....	0	6,309	6,309	333	NA	NA	5,975
Federal Offshore...	5,508	61,276	66,784	17,905	NA	NA	48,879
Colorado.....	488,292	95,724	584,016	10,715	0	1,230	572,071
Florida.....	0	6,706	6,706	0	700	0	6,006
Illinois <sup>E</sup> .....	289	9	298	0	0	0	298
Indiana.....	360	0	360	NA	NA	NA	360
Kansas.....	629,755	85,876	715,631	2,120	NA	716	712,796
Kentucky.....	81,435	0	81,435	0	0	0	81,435
Louisiana Total.....	4,642,272	659,706	5,301,978	39,526	NA	21,705	5,240,747
Onshore .....	1,349,015	120,683	1,469,698	10,956	NA	21,705	1,437,037
State Offshore.....	173,114	19,414	192,527	1,435	NA	NA	191,092
Federal Offshore...	3,120,143	519,609	3,639,752	27,134	NA	NA	3,612,618
Maryland.....	135	0	135	0	0	0	135
Michigan.....	201,123	50,281	251,404	2,340	NA	3,324	245,740
Mississippi.....	117,412	6,210	123,622	9,366	8,316	2,677	103,263
Missouri.....	25	0	25	0	0	0	25
Montana.....	45,154	6,514	51,668	76	NA	596	50,996
Nebraska.....	1,328	548	1,876	0	0	0	1,876
Nevada.....	0	11	11	0	0	0	11
New Mexico.....	1,418,116	246,559	1,664,676	10,131	<sup>a</sup> 97,759	2,700	1,554,087
New York <sup>E</sup> .....	17,494	641	18,134	0	0	3	18,131
North Dakota.....	16,810	38,906	55,716	2,727	358	2,957	49,674
Ohio.....	119,251	0	119,251	NA	NA	NA	119,251
Oklahoma.....	1,467,695	267,192	1,734,887	NA	NA	NA	1,734,887
Oregon.....	1,743	0	1,743	39	265	0	1,439
Pennsylvania.....	135,000	0	135,000	NA	NA	NA	135,000
South Dakota.....	905	8,061	8,965	0	0	7,636	1,329
Tennessee.....	0	1,690	1,690	NA	NA	NA	1,690
Texas Total.....	5,823,804	1,182,798	7,006,602	273,301	238,897	45,382	6,449,022
Onshore .....	4,545,592	1,080,856	5,626,448	273,301	238,897	45,382	5,068,868
State Offshore.....	62,624	716	63,340	NA	NA	NA	63,340
Federal Offshore...	1,215,587	101,226	1,316,814	NA	NA	NA	1,316,814
Utah.....	233,594	47,614	281,208	3,165	NA	27,277	250,767
Virginia.....	54,290	0	54,290	0	0	0	54,290
West Virginia <sup>E</sup> .....	178,984	0	178,984	NA	NA	NA	178,984
Wyoming.....	981,115	109,434	1,090,549	134,867	144,194	145,452	666,036

<sup>a</sup> Nonhydrocarbon gases removed increased significantly in 1996 due to production increases in the Bravo Dome.

<sup>E</sup> = Estimated data.

NA = Not available.

Note: Totals may not equal sum of components due to independent rounding.

Sources: Illinois, New York, Pennsylvania, and West Virginia, 1996: Energy Information Administration (EIA), *U.S. Crude Oil, Natural Gas, and Natural Gas Liquids Reserves, Annual Reports*, DOE/EIA-0216; and EIA computations. All other data: Form EIA-627, "Annual Quantity and Value of Natural Gas Report" (1992 through 1995); Form EIA-895, "Monthly Quantity and Value of Natural Gas Report" (1996); and the United States Minerals Management Service.

**Table 4. Offshore Gross Withdrawals of Natural Gas by State, 1992-1996**  
(Million Cubic Feet)

Year and State	State			Federal			Total Offshore
	From Gas Wells	From Oil Wells	Total	From Gas Wells	From Oil Wells	Total	
<b>1992 Total</b> .....	415,486	136,809	552,294	4,258,686	513,058	4,771,744	5,324,039
Alabama .....	112,311	0	112,311	79,294	0	79,294	191,605
Alaska .....	110,067	106,311	216,377	0	0	0	216,377
California .....	0	7,242	7,242	13,947	41,284	55,231	62,473
Louisiana .....	116,470	21,631	138,101	2,867,842	436,493	3,304,336	3,442,437
Texas .....	76,638	1,625	78,263	1,297,602	35,281	1,332,883	1,411,147
<b>1993 Total</b> .....	470,487	136,948	607,435	4,215,015	550,850	4,765,865	5,373,300
Alabama .....	131,508	0	131,508	86,515	0	86,515	218,023
Alaska .....	127,834	105,363	233,198	0	0	0	233,198
California .....	0	6,484	6,484	10,618	41,532	52,150	58,635
Louisiana .....	133,261	23,750	157,011	2,883,761	467,340	3,351,101	3,508,112
Texas .....	77,883	1,350	79,234	1,234,121	41,978	1,276,099	1,355,333
<b>1994 Total</b> .....	550,079	154,390	704,469	4,373,962	622,235	4,996,197	5,700,666
Alabama .....	228,878	0	228,878	117,308	3,194	120,502	349,380
Alaska .....	99,801	124,501	224,301	0	0	0	224,301
California .....	0	7,204	7,204	11,064	42,497	53,561	60,765
Louisiana .....	137,823	21,690	159,513	2,995,676	518,305	3,513,981	3,673,494
Texas .....	83,577	996	84,573	1,249,914	58,240	1,308,154	1,392,727
<b>1995 Total</b> .....	460,659	28,917	489,576	4,288,219	653,870	4,942,089	5,431,665
Alabama .....	212,895	0	212,895	143,353	350	143,703	356,598
Alaska .....	105,867	7,684	113,552	0	0	0	113,552
California .....	0	5,904	5,904	7,874	46,916	54,790	60,694
Louisiana .....	79,515	14,528	94,044	2,937,666	522,437	3,460,103	3,554,147
Texas .....	62,381	801	63,181	1,199,326	84,167	1,283,493	1,346,674
<b>1996 Total</b> .....	563,746	33,493	597,239	4,493,294	682,111	5,175,405	5,772,644
Alabama .....	209,013	0	209,013	152,055	0	152,055	361,068
Alaska .....	118,996	7,055	126,051	0	0	0	126,051
California .....	0	6,309	6,309	5,508	61,276	66,784	73,092
Louisiana .....	173,114	19,414	192,527	3,120,143	519,609	3,639,752	3,832,280
Texas .....	62,624	716	63,340	1,215,587	101,226	1,316,814	1,380,154

Notes: For individual State and U.S. production, see Table 3. Totals may not equal sum of components due to independent rounding.  
Source: Appropriate State agencies responses to informal data requests and the United States Minerals Management Service.

**Table 5. Number of Producing Gas and Gas Condensate Wells by State as of December 31, 1992-1996**

State	1992	1993	1994	1995	1996
Alabama .....	3,350	3,514	3,565	3,526	4,105
Alaska .....	112	113	104	100	102
Arizona .....	6	6	6	7	7
Arkansas .....	3,500	3,500	3,500	3,988	4,020
California .....	1,126	1,092	1,261	997	978
Colorado .....	5,912	6,372	7,056	7,017	8,251
Illinois .....	382	385	390	372	370
Indiana .....	1,333	1,336	1,348	1,347	1,367
Kansas .....	18,400	19,472	19,365	22,020	21,388
Kentucky .....	12,483	12,836	13,036	13,311	13,501
Louisiana .....	13,512	15,569	12,958	14,169	15,295
Maryland .....	9	7	7	7	8
Michigan .....	3,257	5,500	6,000	5,258	5,826
Mississippi .....	507	620	583	535	568
Missouri .....	5	8	12	15	24
Montana .....	2,890	3,075	2,940	2,918	2,990
Nebraska .....	22	59	87	87	88
Nevada .....	0	0	0	0	5
New Mexico .....	18,040	20,846	23,292	23,510	24,134
New York .....	5,906	5,757	5,884	6,134	6,208
North Dakota .....	104	101	104	99	108
Ohio .....	34,784	34,782	34,731	34,520	34,380
Oklahoma .....	28,902	29,118	29,121	29,733	29,733
Oregon .....	16	18	19	17	18
Pennsylvania .....	31,000	31,100	31,150	31,025	31,792
South Dakota .....	38	47	55	56	61
Texas .....	46,298	47,101	48,654	54,635	53,816
Utah .....	1,006	1,061	1,303	1,127	1,339
Virginia .....	1,153	1,426	1,470	1,671	1,671
West Virginia .....	38,250	33,716	39,830	36,144	35,148
Wyoming .....	3,111	3,615	3,942	4,196	4,510
<b>Total .....</b>	<b>275,414</b>	<b>282,152</b>	<b>291,773</b>	<b>298,541</b>	<b>301,811</b>

Note: Totals may not equal sum of components due to independent rounding.

Sources: Energy Information Administration (EIA), Form EIA-627, "Annual Quantity and Value of Natural Gas Report" (1992 through 1995); Form EIA-895, "Monthly Quantity and Value of Natural Gas Report" (1996); the United States Minerals Management Services (MMS), and *World Oil Magazine*.

**Table 6. Estimated Total Dry Natural Gas Proved Reserves by State, 1992-1996**  
(Billion Cubic Feet)

State	1992	1993	1994	1995	1996
Alabama .....	5,802	5,140	4,830	4,868	5,033
Alaska .....	9,638	9,907	9,733	9,497	9,294
Arkansas .....	1,750	1,552	1,607	1,563	1,470
California .....	2,778	2,682	2,402	2,243	2,082
Colorado .....	6,198	6,722	6,753	7,256	7,710
Florida .....	47	50	98	92	96
Kansas .....	9,681	9,348	9,156	8,571	7,694
Kentucky .....	1,084	1,003	969	1,044	983
Louisiana .....	9,780	9,174	9,748	9,274	9,543
Michigan .....	1,223	1,160	1,323	1,294	2,061
Mississippi .....	869	797	650	663	631
Montana .....	859	673	717	782	796
New Mexico .....	18,998	18,619	17,228	17,491	16,485
New York .....	329	264	242	197	232
North Dakota .....	496	525	507	463	462
Ohio .....	1,161	1,104	1,094	1,054	1,113
Oklahoma .....	13,926	13,289	13,487	13,438	13,074
Pennsylvania .....	1,528	1,717	1,800	1,482	1,696
Texas .....	35,093	34,718	35,974	36,542	38,270
Utah .....	1,830	2,040	1,789	1,580	1,633
Virginia .....	904	1,322	1,833	1,836	1,930
West Virginia .....	2,356	2,439	2,565	2,499	2,703
Wyoming .....	10,826	10,933	10,879	12,166	12,320
Federal Offshore .....	27,767	27,143	28,388	29,182	29,096
Other States <sup>a</sup> .....	92	94	65	69	67
<b>Total .....</b>	<b>165,015</b>	<b>162,415</b>	<b>163,837</b>	<b>165,146</b>	<b>166,474</b>

<sup>a</sup> Includes Arizona, Illinois, Indiana, Maryland, Missouri, Nebraska, Nevada, Oregon, South Dakota, and Tennessee.

Note: Totals may not equal sum of components due to independent rounding.

Sources: Energy Information Administration (EIA), *U.S. Crude Oil, Natural Gas, and Natural Gas Liquids Reserves, Annual Reports*, DOE/EIA-0216.

**Table 7. Wellhead Value and Marketed Production of Natural Gas by State, 1992-1996**

Year and State	Reported Wellhead Value		Average Wellhead Price (dollars per thousand cubic feet)	Marketed Production (million cubic feet)	Imputed Wellhead Value of Marketed Production <sup>b</sup> (thousand dollars)
	Volume <sup>a</sup> (million cubic feet)	Value (thousand dollars)			
<b>1992 Total</b> .....	15,852,090	—	1.74	18,711,808	32,570,827
<b>1993 Total</b> .....	15,341,514	—	2.04	18,981,915	38,810,612
<b>1994 Total</b> .....	15,513,667	—	1.85	19,709,525	36,535,940
<b>1995 Total</b> .....	15,557,464	—	1.55	19,506,474	30,285,862
<b>1996 Total</b> .....	14,822,258	—	2.17	19,750,793	42,818,138
Alabama.....	493,069	1,291,043	2.62	530,841	1,389,944
Alaska.....	193,278	310,495	1.61	480,828	772,435
Arizona.....	405	668	1.65	463	765
Arkansas <sup>c</sup> .....	76,671	292,637	3.82	221,822	846,649
California.....	37,823	68,842	1.82	286,494	521,448
Colorado <sup>c</sup> .....	559,473	765,819	1.37	572,071	783,063
Florida.....	NA	NA	—	6,006	0
Illinois.....	NA	NA	—	298	0
Indiana.....	360	827	2.30	360	827
Kansas.....	712,796	1,366,444	1.92	712,796	1,366,444
Kentucky.....	81,435	207,310	2.55	81,435	207,310
Louisiana.....	3,976,305	9,252,276	2.33	5,240,747	12,194,432
Maryland.....	NA	NA	—	135	0
Michigan.....	245,740	544,020	2.21	245,740	544,019
Mississippi.....	88,805	147,725	1.66	103,263	171,775
Missouri.....	25	39	1.56	25	39
Montana.....	46,868	66,261	1.41	50,996	72,097
Nebraska.....	1,332	1,901	1.43	1,876	2,678
Nevada <sup>d</sup> .....	0	0	—	11	0
New Mexico.....	1,553,103	2,587,338	1.67	1,554,087	2,588,984
New York.....	NA	NA	—	18,131	0
North Dakota.....	NA	NA	—	49,674	0
Ohio.....	119,251	313,631	2.63	119,251	313,631
Oklahoma.....	1,751,487	3,876,308	2.21	1,734,887	3,839,565
Oregon.....	1,439	3,254	2.26	1,439	3,254
Pennsylvania.....	NA	NA	—	135,000	0
South Dakota.....	NA	NA	—	1,329	0
Tennessee.....	1,690	4,300	2.54	1,690	4,300
Texas.....	4,684,140	10,726,706	2.29	6,449,022	14,768,324
Utah.....	168,944	234,047	1.39	250,767	347,402
Virginia.....	NA	NA	—	54,290	0
West Virginia.....	NA	NA	—	178,984	0
Wyoming.....	27,821	71,632	2.57	666,036	1,714,837

<sup>a</sup> Quantity of production associated with reported wellhead value. A number of States reported values associated with quantities other than marketed production.

<sup>b</sup> Average wellhead price times marketed production does not equal imputed value of marketed production due to independent rounding.

<sup>c</sup> Quantity and value data obtained from Energy Information Administration Form EIA-176, "Annual Report of Natural and Supplemental Gas Supply and Disposition."

<sup>d</sup> All of Nevada's marketed production was consumed as lease fuel.

NA = Not available.

— = Not applicable.

Note: Totals may not equal sum of components due to independent rounding.

Sources: Illinois and Pennsylvania, 1996: EIA Computations. All other data: Form EIA-627, "Annual Quantity and Value of Natural Gas Report" (1992 through 1995); Form EIA-895, "Monthly Quantity and Value of Natural Gas Report" (1996); and the United States Minerals Management Service.



**Table 8. Natural Gas Processed, Liquids Extracted, and Estimated Extraction Loss by State, 1996**

Plant Location	Natural Gas Processed (million cubic feet)	Total Liquids Extracted (thousand barrels)	Extraction Loss	
			Volume (million cubic feet)	Estimated Heat Content (billion Btu)
Alabama .....	112,868	4,009	5,361	16,890
Alaska .....	2,987,364	33,346	38,453	148,444
Arkansas .....	219,477	383	479	1,589
California .....	240,566	9,798	12,169	41,037
Colorado .....	493,963	16,735	23,362	62,801
Florida .....	8,514	1,630	1,649	6,061
Illinois .....	578	63	64	271
Kansas .....	970,163	35,285	47,996	138,582
Kentucky .....	46,015	1,692	2,385	6,640
Louisiana .....	4,652,677	101,716	139,841	385,513
Michigan .....	117,119	4,810	6,399	18,933
Mississippi .....	4,521	254	340	1,092
Montana .....	10,141	431	576	1,808
New Mexico .....	1,129,598	75,476	108,341	275,468
North Dakota .....	47,942	3,860	4,937	16,156
Ohio .....	2,477	64	85	269
Oklahoma .....	1,054,123	70,165	100,379	257,103
Pennsylvania .....	10,341	458	603	1,888
Texas .....	4,180,062	279,650	398,442	1,035,573
Utah .....	265,546	9,547	10,970	36,543
West Virginia .....	70,709	4,849	7,093	17,893
Wyoming .....	845,253	35,093	48,254	136,930
<b>Total .....</b>	<b>17,470,017</b>	<b>689,314</b>	<b>958,178</b>	<b>2,607,484</b>

Note: Totals may not equal sum of components due to independent rounding.

Sources: Natural Gas Processed, Total Liquids Extracted, and Extraction Loss Volume: Energy Information Administration (EIA), Form EIA-64A, "Annual Report of the Origin of Natural Gas Liquids Production." Estimated Heat Content of Extraction Loss: Estimated, assuming the makeup to total liquids production as reported on Form EIA-64A for each State was proportional to the components and products ultimately separated in the States as reported on the 12 monthly reports on Energy Information Administration, Form EIA-816, "Monthly Natural Gas Liquids Report," and applying the following conversion factors to the individual component and product production estimates (million Btu extraction loss per barrel of liquid produced): ethane, 3.082; propane, 3.836; normal butane, 4.326; isobutane, 3.974; pentanes plus, 4.620.